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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/199,836 11/24/98 ACHARYA

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EXAMINER

MMC2/0125

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ART UNIT

PAPER NUMBER

2878

DATE MAILED:

01/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Applicant(s)

09/199,836

Applicant(s)

ACHARYA ET AL.

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

1. Claims 1-16 are currently pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3-9 and 11-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 9, it is unclear if green, red and blue also refers to pass filters or if pass filters only refers to infrared. Furthermore, it is unclear what "relative proportions" refers to, a size, a number or a distribution of the pass filters.

Regarding claims 3, 4, 8, 11, 12 and 16, it is unclear what n and m represent. That is, are n and m, integers, counting numbers, index numbers, row or column numbers. Further, in claims 3 and 11, what does the i and j represent in " $f_{i,j}$ "?

Regarding claims 5-7 and 13-15, the variable "j" is not defined. Furthermore, how does "j" relate to the functionality of the device?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al. (U.S. Patent 5,926,238).

Regarding claim 1, Inoue et al. disclose (see Figure 8B) a color filter array comprising a unit array, the unit array having green, red, blue and infrared pass filters in relative proportions 4:1:1:2, respectively.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 3 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al.

Regarding claim 9, Inoue et al. disclose (see Figure 8B) a color filter array comprising a unit array, the unit array having green, red, blue and infrared pass filters in relative proportions 4:1:1:2, respectively. Inoue et al. do not disclose the colors of

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yellow, magenta and cyan. However, RGB and CYMK color palettes are notoriously well known and associated. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the colors of yellow, magenta and cyan in the apparatus of Inoue et al. since the colors are art recognized equivalent.

Regarding claims 2 and 10, Inoue et al. do not disclose the specific filter arrangement as claimed. However, the specific color arrangement is simply a matter of design choice and requires only routine skill in the art to rearrange. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to rearrange the filters of Inoue et al. as claimed since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 96 USPQ 70.

Regarding claims 3 and 11, Inoue et al. do not specifically disclose the notation as claimed. However, it would require only routine skill in the art at the time the invention was made to provide notation to describe the color filter array.

8. Claims 4-8 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. in view of Lu et al. (U.S. Patent 5,805,217).

Regarding claims 4 and 12, Inoue et al. do not disclose an array of pixel sensors. Lu et al. disclose (see Figure 1) a color filter array (18) superimposed on an array of pixel sensors (24). It would be inherent that the pixel array provides output at a position at which the light impinges the array. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide an array of pixel sensors in the apparatus of Inoue et al. in view of Lu et al. in order to obtain detection signals for more quantitative analysis.

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Regarding claims 5-8, 13-16, Lu et al. further disclose (see Figure 1) a processor (36) for providing interpolated color component signals. Furthermore, it is notoriously well known in the art to interpolate by averaging values of neighboring or adjacent pixels. Thus, It would have been obvious to a person of ordinary skill in the art at the time the invention was made interpolate as claimed in the apparatus of Inoue et al. in view of Lu et al. A memory is inherently included to store interpolation instructions.

Response to Arguments

9. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham, can be reached on (703) 308-4090. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl

January 23, 2001



Que T. Le
Primary Examiner